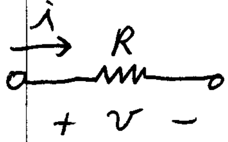
ELEC 226

Review of Chapter 6



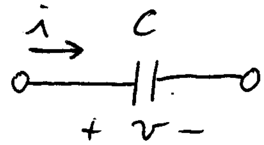
$v = i \cdot R$

$i = \frac{1}{R} v$

$p = v \cdot i$
$= i^2 R = \frac{1}{R} v^2$

$w(t) = \int_{t_0}^{t} p(x)\, dx$

= Energy dissipated during $[t_0, t]$



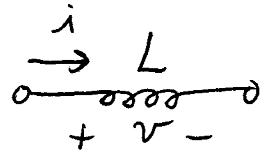
$v(t) = \frac{1}{C} \int_{t_0}^{t} i(x)\, dx + v(t_0)$

$i = C \frac{dv}{dt}$

$p = v \cdot i$

$w(t) = \frac{1}{2} C\, v(t)^2$

Energy stored at any time t.



$v = L \frac{di}{dt}$

$i(t) = \frac{1}{L} \int_{t_0}^{t} v(x)\, dx + i(t_0)$

$w(t) = \frac{1}{2} L\, i(t)^2$

Energy stored at any time t.

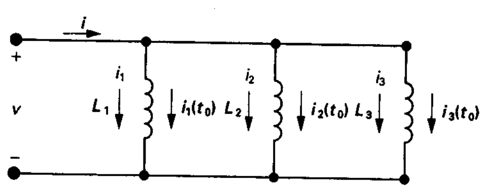
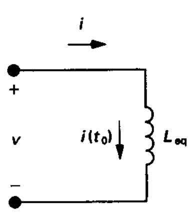


Figure 6.15 Three inductors in parallel.



$\frac{1}{L_{eq}} = \frac{1}{L_1} + \frac{1}{L_2} + \frac{1}{L_3}$

$i(t_0) = i_1(t_0) + i_2(t_0) + i_3(t_0)$

Figure 6.16 An equivalent circuit for three inductors in parallel.

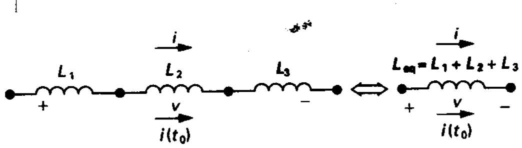
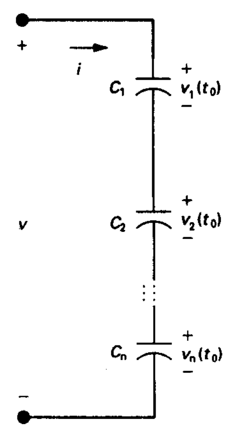
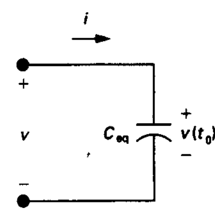


Figure 6.14 An equivalent circuit for inductors in series carrying an initial current $i(t_0)$.



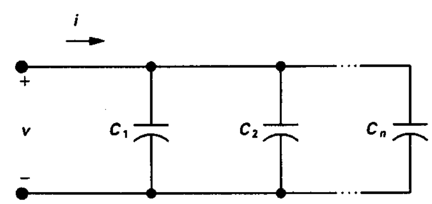
(a)



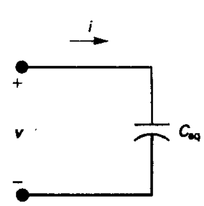
$\frac{1}{C_{eq}} = \frac{1}{C_1} + \frac{1}{C_2} + \cdots + \frac{1}{C_n}$

$v(t_0) = v_1(t_0) + v_2(t_0) + \cdots + v_n(t_0)$

(b)



(a)



$C_{eq} = C_1 + C_2 + \cdots + C_n$

(b)